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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,774	05/01/2007	Nobuo Kaifu	289400US0PCT	2526
22850	7590	03/19/2008	EXAMINER	
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			HEINCER, LIAM J	
			ART UNIT	PAPER NUMBER
			1796	
			NOTIFICATION DATE	DELIVERY MODE
			03/19/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/574,774	Applicant(s) KAIFU ET AL.	
	Examiner Liam J. Heincer	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 15-17 is/are rejected.
- 7) ☒ Claim(s) 4-14 and 18-22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/2006, 4/2007, 9/2007, and 2/2008</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claims 4-14 and 18-22 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims 4-14 and 18-22 have not been further treated on the merits.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norton (US Pat. 2,385,370) in view of Honda (JP 2003-277308), Yurcick et al. (US Pat. 3,410,818), Honda et al. (US Pat. 3,814,713). A machine translation is being used for JP 2003-277308 and all citations will be directed towards this document.

Considering Claims 1 and 2: Norton teaches a process for producing a resorcinol formalin resin (1:1-3) comprising adding to a water solvent (2:5-9) resorcinol (2:15) in an amount of 100 parts per weight per 100 parts water (3:9-11); mixing/stirring the mixture (3:9-11); adding an acid catalyst (3:11-13); adding 37% formaldehyde/formalin (3:20-26) dropwise (2:30-33) in a molar ratio of 0.5:1 (4:12-14) under stirring for 15 to 20 minutes (3:39-48); further reacting after the addition of the formaldehyde (3:50-59); and removing the aqueous layer (3:62-66).

Norton does not teach adding an inorganic salt to the resorcinol water mixture. However, Honda teaches adding a inorganic salt (¶0012) to a resorcinol mixture prior to the addition of the formaldehyde component (¶0024). Honda also teaches the salt as being used in an amount of 0.5 to 6 moles per mole of resorcinol (¶0017), and since anhydrous calcium chloride is the preferred salt (¶0013) the parts by weight of the salt would be from 50 to 600 parts per 100 parts resorcinol. Norton and Honda are combinable as they are concerned with the same field of endeavor, namely acid catalyzed resorcinol-formaldehyde resin production. It would have been obvious to a person having ordinary skill in the art at the time of invention to have added the inorganic salt of Honda to the reaction mixture of Norton, and the motivation to do so would have been, as Honda suggests, to control the molecular weight and reduce the amount of unreacted resorcinol in the resin (¶0008).

Norton does not teach adding an organic solvent to the reaction medium. However, Yurcick et al. teaches adding organic solvents such as acetone to an aqueous resorcinol-formaldehyde reaction mixture (3:59-65). Norton and Yurcick et al. are combinable as they are concerned with the same field of endeavor, namely resorcinol-formaldehyde resin production. It would have been obvious to a person having ordinary skill in the art at the time of invention to have added the organic solvent of Yurcick et al. to the reaction medium of Norton, and the motivation to do so would have been, as Yurcick et al. suggests, to increase the solubility of the various components during the reaction (3:59-65).

Norton does not teach the solvent as being present in the claimed amount. However, it is well known in the art to optimize result effective variables such as solvent amount. It would have been obvious to a person having ordinary skill in the art at the time

of invention to have optimized the solvent amount through routine experimentation, and the motivation to do so would have been to increase the solubility of the monomers and reaction products during the reaction. See MPEP § 2144.05.

Norton does not teach diluting the product with an organic solvent. However, Honda et al. teaches adding an organic ketone, such as methyl ethyl ketone, to a resin mixture following the condensation reaction between resorcinol and formaldehyde in an amount of 4 to 6 times the amount of resin. Honda et al. then teaches extracting the mixture with water/adding water to the solution, allowing the layers to separate, and then removing the aqueous layer (5:1-43). Norton and Honda et al. are combinable as they are concerned with the same field of endeavor, namely producing resorcinol formaldehyde resins. It would have been obvious to a person having ordinary skill in the art at the time of invention to have used the solvent dilution and water extraction step of Honda et al. in the process of Norton, and the motivation to do so would have been, as Honda et al. suggests, to reduce the amount of unreacted resorcinol in the composition (5:36-40).

Norton does not teach the water being added in the claimed amount during the extraction step. However, it is well known in the art to optimize result effective variables such as amount of water added. It would have been obvious to a person having ordinary skill in the art at the time of invention to have optimized the amount of water added through routine optimization, and the motivation to do so would have been to fully remove the desired amount of unreacted resorcinol. See MPEP § 2144.05.

Considering Claim 3: The Office realizes that all of the claimed effects or physical properties are not positively stated by the reference(s). However, the reference(s) teaches all of the claimed ingredients and process steps. Therefore, the claimed effects and physical properties, i.e. amount of unreacted monomers and high molecular weight products would implicitly be achieved by a process using the claimed ingredients and process steps. If it is the applicant's position that this would not be the case: (1) evidence would need to be provided to support the applicant's position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties with only the claimed ingredients.

Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norton (US Pat. 2,385,370) in view of Honda (JP 2003-277308), Yurcick et al. (US Pat. 3,410,818), Honda et al. (US Pat. 3,814,713). A machine translation is being used for JP 2003-277308 and all citations will be directed towards this document.

Considering Claims 15 and 16: Norton teaches a resorcinol-formaldehyde resin (1:1-3) made by the process comprising adding to a water solvent (2:5-9) resorcinol (2:15) in an amount of 100 parts per weight per 100 parts water (3:9-11); mixing/stirring the mixture (3:9-11); adding an acid catalyst (3:11-13); adding 37% formaldehyde/formalin (3:20-26) dropwise (2:30-33) in a molar ratio of 0.5:1 (4:12-14) under stirring for 15 to 20 minutes (3:39-48); further reacting after the addition of the formaldehyde (3:50-59); and removing the aqueous layer (3:62-66).

Norton does not teach adding an inorganic salt to the resorcinol water mixture. However, Honda teaches adding an inorganic salt (¶0012) to a resorcinol mixture prior to the addition of the formaldehyde component (¶0024). Honda also teaches the salt as being used in an amount of 0.5 to 6 moles per mole of resorcinol (¶0017), and since anhydrous calcium chloride is the preferred salt (¶0013) the parts by weight of the salt would be from 50 to 600 parts per 100 parts resorcinol. Norton and Honda are combinable as they are concerned with the same field of endeavor, namely acid catalyzed resorcinol-formaldehyde resin production. It would have been obvious to a person having ordinary skill in the art at the time of invention to have added the inorganic salt of Honda to the reaction mixture of Norton, and the motivation to do so would have been, as ref2 suggests, to control the molecular weight and reduce the amount of unreacted resorcinol in the resin (¶0008).

Norton does not teach adding an organic solvent to the reaction medium. However, Yurcick et al. teaches adding organic solvents such as acetone to an aqueous resorcinol-formaldehyde reaction mixture (3:59-65). Norton and Yurcick et al. are combinable as they are concerned with the same field of endeavor, namely resorcinol-formaldehyde resin production. It would have been obvious to a person having ordinary skill in the art at the time of invention to have added the organic solvent of Yurcick et al. to the reaction medium

of Norton, and the motivation to do so would have been, as Yurcick et al. suggests, to increase the solubility of the various components during the reaction (3:59-65).

Norton does not teach the solvent as being present in the claimed amount. However, it is well known in the art to optimize result effective variables such as solvent amount. It would have been obvious to a person having ordinary skill in the art at the time of invention to have optimized the solvent amount through routine experimentation, and the motivation to do so would have been to increase the solubility of the monomers and reaction products during the reaction. See MPEP § 2144.05.

Norton does not teach diluting the product with an organic solvent. However, Honda et al. teaches adding an organic ketone, such as methyl ethyl ketone, to a resin mixture following the condensation reaction between resorcinol and formaldehyde in an amount of 4 to 6 times the amount of resin. Honda et al. then teaches extracting the mixture with water/adding water to the solution, allowing the layers to separate, and then removing the aqueous layer (5:1-43). Norton and Honda et al. are combinable as they are concerned with the same field of endeavor, namely producing resorcinol formaldehyde resins. It would have been obvious to a person having ordinary skill in the art at the time of invention to have used the solvent dilution and water extraction step of Honda et al. in the process of Norton, and the motivation to do so would have been, as Honda et al. suggests, to reduce the amount of unreacted resorcinol in the composition (5:36-40).

Norton does not teach the water being added in the claimed amount during the extraction step. However, it is well known in the art to optimize result effective variables such as amount of water added. It would have been obvious to a person having ordinary skill in the art at the time of invention to have optimized the amount of water added through routine optimization, and the motivation to do so would have been to fully remove the desired amount of unreacted resorcinol. See MPEP § 2144.05.

Considering Claim 17: The Office realizes that all of the claimed effects or physical properties are not positively stated by the reference(s). However, the reference(s) teaches all of the claimed ingredients and process steps. Therefore, the claimed effects and physical properties, i.e. amount of unreacted monomers and high molecular weight products would implicitly be achieved by a process using the claimed ingredients and

process steps. If it is the applicant's position that this would not be the case: (1) evidence would need to be provided to support the applicant's position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties with only the claimed ingredients.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO Form 892.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Liam J. Heincer whose telephone number is 571-270-3297. The examiner can normally be reached on Monday thru Friday 7:30 to 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MARK EASHOO/
Supervisory Patent Examiner, Art Unit 1796
10-Mar-08

LJH
February 27, 2008